

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2004

BUDGET ACTIVITY

5 - System Development and Demonstration

PE NUMBER AND TITLE

0604854A - Artillery Systems - EMD

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	30483	32289	9550	1389	0	0	0	0	123505
509 LIGHTWEIGHT 155M HOWITZER	24279	31744	8772	971	0	0	0	0	109972
516 PALADIN/FAASV	6204	545	778	418	0	0	0	0	13533

A. Mission Description and Budget Item Justification: This program element supports the Joint Light Weight 155mm Howitzer (LW155) and the Paladin/FAASV Improvement programs.

The LW155, a joint program with the Marine Corps, provides the replacement for the current 1970's vintage M198, 155mm Towed Howitzer. The LW155 provides significant improvement in strategic and tactical mobility over the M198. The Army portion of the joint development is the Towed Artillery Digitization (TAD). TAD is the digital fire control system for the LW155. TAD provides increased accuracy, survivability, and lethality for Army and USMC 155mm Towed Artillery. This system supports both the Current/Stryker Brigade Combat Team(SBCT)transition paths of the Transformation Campaign Plan (TCP).

The Paladin/FAASV project integrates several system improvements that provide for: stowage and automated dispensing of M231/M232, Modular Artillery Charge System (MACS) that is displacing the current propelling charges; the Graphical User Interface (GUI) software; the Defense Advanced GPS Receiver (DAGR); and upgrading components of the Automated Fire Control System now called Paladin Digital Fire Control System (PDFCS) to avoid obsolescence. In addition, other system improvements include the battlefield digitization trainer, the direct drive generator, and development of the Paladin Operations Center Vehicle (Pal OCV). The system improvements provide significantly improved mission effectiveness, increased reliability, maintainability, supportability, and Battle Command on-the-move, as well as reduce life cycle costs. This system supports the Current transition path of the Transformation Campaign Plan (TCP).

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	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	26614	32629	9636
Current Budget (FY 2005 PB)	30483	32289	9550
Total Adjustments	3869	-340	-86
Congressional program reductions		-307	
Congressional rescissions			
Congressional increases			
Reprogrammings	3869	-33	
SBIR/STTR Transfer			
Adjustments to Budget Years			-86

FY03 below threshold reprogramming to support Lightweight 155M Howitzer (\$3.3M) and Paladin (\$.6).

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0604854A - Artillery Systems - EMD

PROJECT

509

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
509 LIGHTWEIGHT 155M HOWITZER	24279	31744	8772	971	0	0	0	0	109972

A. Mission Description and Budget Item Justification: The Lightweight 155mm (LW155) Towed Howitzer, a jointly managed program with the Marine Corps, will provide the replacement for the M198, 155mm Towed Howitzer. LW155 provides significant strategic and tactical mobility improvements. Project 509 supports Towed Artillery Digitization (TAD) Block I, a digital fire control system for the M777 Towed Howitzer (base model of LW155), making it an M777E1. TAD will increase the accuracy, survivability, and lethality of Army and USMC 155mm Towed Artillery. Close coordination with the Excalibur office will ensure that the M777E1 will be capable of firing the Excalibur precision munition in FY06.

This system supports both the Current and Stryker transition paths of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Funded the FY03 increment of the TAD Block I SDD contract.	19454	0	0
Funded the early stages of Technical Testing for the M777E1.	400	0	0
Funded core program management, business management, facilities, and other administrative functions.	1115	0	0
Funded matrix engineering support for IPTs and Reviews. IPTs included Digital Fire Control Development, Test, Platform Integration, Logistics, Technical Management, and Program Management. Reviews included Design Reviews at the System level and numerous Software Reviews.	3310	0	0
Funds future increments of the TAD Block I SDD contract.	0	15725	5050
Funds matrix engineering support for IPTs and software reviews.	0	3250	2622
Funds core program management, business management, facilities, and other administrative functions.	0	1100	1100
Funds remaining M777E1 technical testing, software Formal Qualification Testing, and Operational Test planning.	0	7566	0
Funds Joint M777E1 Operational Test and Evaluation.	0	3200	0
Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR)	0	903	0
Totals	24279	31744	8772

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PROJECT

509

B. Other Program Funding Summary

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
RDTE, Navy LW155 Towed How 060363M	13166	5828	0	0	0	0	0	0	33488
Procurement, Marine Corps LW155 Towed Howitzer with TAD Prod, BLIN 218500	62020	111489	175543	177071	73585	0	0	0	599708
Procurement, WTCV, Army, LW155 with TAD G01700	0	7939	37209	46786	128285	191542	3509	65200	481561

C. Acquisition Strategy: The overall M777E1 Acquisition Strategy/Plan is to execute a CPIF contract, where the prime contractor has Total System Performance Responsibility (TSPR). TSPR includes the development and testing of TAD Block I, as well as integrating the final TAD hardware onto the M777 lightweight howitzer for a final integrated M777E1 system. The M777E1 will undergo a combined Army/USMC Operational Test (OT) in 4QFY04. This OT will be jointly funded. TAD Block I test articles have been procured with Army RDTE funds. Howitzer test articles are being procured with USMC production funds.

All Army howitzers will come off the production line with TAD Block I already installed. The Marine Corps will retrofit 94 LRIP LW155 howitzers with TAD. The remainder of the USMC LW155 production run will have TAD Block I already installed.

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604854A - Artillery Systems - EMD					PROJECT 509		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TAD SDD Contract (pre-novation to BAE Systems) Does not include Test Articles	CPIF/AF	General Dynamics, Burlington, VT	14136	0		0		0		0	14136	14136
b . M777E1 SDD Contract (post-novation)	CPIF	BAE Systems, United Kingdom	8450	19454	1-2Q	16628	1Q	5050	1Q	0	49582	49582
c . Matrix Engineering Support	MIPR	ARDEC, Picatinny Arsenal, NJ	12367	3310	1-3Q	3250	1-3Q	2622	1-3Q	0	21549	0
d . Preparation for TAD Block II	TBD	TBD	0	0		0		0		671	671	0
Subtotal:			34953	22764		19878		7672		671	85938	63718

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BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604854A - Artillery Systems - EMD					PROJECT 509		
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management	Allotment	JPMO LW155, Picatinny Arsenal, NJ	3858	1115	1-3Q	1100	1-3Q	1100	1-3Q	300	7473	0
Subtotal:			3858	1115		1100		1100		300	7473	0
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TAD Block I SDD Test Articles (prenovation)	CPIF/AF	General Dynamics, Burlington, VT	5395	0		0		0		0	5395	5395
b . M777E1 Technical Testing	MIPR	Yuma Proving Grounds, AZ	0	400	4Q	7566	1-3Q	0		0	7966	0
c . M777E1 Operational Testing	MIPR	Marine Corps Operational Test and Evaluation Agency, Quantico, VA	0	0		3200	1-3Q	0		0	3200	0
Subtotal:			5395	400		10766		0		0	16561	5395

ARMY RDT&E COST ANALYSIS(R3)										February 2004		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
5 - System Development and Demonstration					0604854A - Artillery Systems - EMD					509		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												
Project Total Cost:			44206	24279		31744		8772		971	109972	69113

Schedule Profile (R4 Exhibit)																							February 2004																												
BUDGET ACTIVITY 5 - System Development and Demonstration												PE NUMBER AND TITLE 0604854A - Artillery Systems - EMD																PROJECT 509																							
Event Name												FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09											
												1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
SDD												Digital Fire Control																																							
DT&E																DVT/Tech Tests																																			
OT&E																				Arctic OT&E (M777E1)																															
OT&E																				Joint OT&E (M777E1)																															
(1) MS C																								1 Digital Fire Control MS C																											
(2) FRP Decision																								2 Joint Full-Rate Production																											
Fielding																												2/25 ID (SBCT)																							
(3) IOC																												3 M777A1 IOC (Army)																							
Fielding																																2 ACR (SBCT)																			
Fielding																																3/2 ID (SBCT)																			
Fielding																																				1/25 ID (SBCT)															
Fielding																																								172nd SBCT											
Fielding																																				PA ARNG (SBCT)															
Fielding																																								F/7 FA 25th ID											
Fielding																																				1-321 FA (ABN)(Bragg)															
Fielding																																								E/7 FA 10th Mtn Div											
Fielding																																								2-111 FA (VA ARNG)											
Fielding																																												1-152 FA (ME ARNG)							

Schedule Detail (R4a Exhibit)						February 2004	
BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604854A - Artillery Systems - EMD			PROJECT 509	
<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
System Development and Demonstration	1-3Q						
Design Verification and Test / Technical Testing	2-4Q	1-3Q					
Arctic Operational Test and Evaluation (M777E1)		2Q					
Joint Operational Test and Evaluation (M777E1)		4Q					
Milestone C			1Q				
Full Rate Production Decision			1Q				
Initial Operational Capability				4Q			